CLAIMS

What is claimed is:

1. A method, comprising:

optically coupling a test structure to a device on a wafer, the test structure included on the wafer, the test structure comprising a first region, a second region, and an interface defined between the first and second regions, the second region comprising a material different from a material of the first region, wherein the test structure is optically coupled to the device in a manner to allow the interface to direct a light beam emitted from the device in a direction different from an original direction of the emitted light beam; and

detecting the light beam directed from the interface.

2. The method of claim 1 wherein optically coupling the test structure to a device includes optically coupling the test structure to a side-emitting laser.

3. The method of claim 1 wherein directing the light beam comprises reflecting the light beam from the interface defined between the first and the second regions and wherein the first and the second regions are comprised of materials having two different refractive indexes.

4. The method of claim 1 wherein optically coupling the test structure to the device on the wafer includes coupling the test structure to a back facet of the device.

5. The method of claim 1 wherein the light detector is positioned to receive the light beam emitted from the device.

6. The method of claim 1 wherein detecting the light beam includes detecting a frequency and intensity of the emitted light beam.

7. The method of claim 1 wherein the detecting the light beam includes detecting the light beam with at least one of a photodiode, avalanche photodiode, positive-intrinsic-negative (PIN) detector, and a charge coupled device.

8. The method of claim 7 wherein a light detector is integrated into the test structure.

9. An article of manufacture, comprising:

at least one light emitting device located on a semiconductor wafer, the light emitting device having a first end and a second end;

a test structure included on the wafer, the test structure optically coupled to the light emitting device at the second end of the light emitting device; and

a generally inclined interface defined by a first material and a second material of the test structure, the inclined interface to direct a light signal received from the light emitting device towards a direction different from an original path of the light signal from that light emitting device.

10. The article of manufacture of claim 9 wherein the first end of each light emitting device comprises a front facet and the second end of each light emitting device comprises a back facet.

11. The article of manufacture of claim 10 wherein a plurality of light emitting devices are arranged in rows, the back facet of each light emitting device in a row opposing the back facet of a corresponding light emitting device located in an adjacent row.

12. The article of manufacture of claim 9 wherein the inclined interface is capable to reflect light received from the light emitting device in a substantially orthogonal direction relative to the original path.

13. The article of manufacture of claim 9, further comprising a light detector formed adjacent to the test structure and capable to detect divergent light directed from the inclined interface.

14. An article of manufacture, comprising:

a plurality of light emitting devices located on a semiconductor wafer; and

a structure included on the wafer, the structure structured to direct light received from the light emitting devices toward a direction different from an original direction of the light as emitted from the light emitting devices.

15. The article of manufacture of claim 14 wherein the plurality of light emitting devices include edge-emitting lasers.

16. The article of manufacture of claim 14 wherein the structure comprises a first material separated from a second material by an inclined interface.

17. The article of manufacture of claim 14 wherein the original direction of the light as emitted from the light emitting devices includes a direction substantially parallel to at least one of a top and bottom surface of the light emitting device.

18. The article of manufacture of claim 17 wherein the light is directed from the structure through said at least one of the top and bottom surface of the light emitting device.

19. A process, comprising:

forming a semiconductor device on a wafer; and

forming a test structure on the wafer, the test structure optically coupled to an end of the semiconductor device, comprising:

depositing a photoresist material on a first region adjacent to the semiconductor device;

selectively removing portions of the photoresist material to form inclined sections separated by openings to expose the first region; and

selectively etching the first region through the openings to remove portions of the first region to form an incline on the first region based on the incline of the sections and to form a second region.

20. The process of claim 19, further comprising depositing a reflective material on the incline of the first region.

21. The process of claim 19 wherein the first region has a first index of refraction, the process further comprising placing a material with a second index of refraction over the first region to fill the second region.

22. The process of claim 19, further comprising forming a photosensitive device adjacent to the end of the semiconductor device.

23. A test structure, comprising:

an inclined interface capable to direct light;

a first region below the inclined interface; and

a second region above the inclined interface,

wherein the first region is capable to be optically coupled to a light emitting device to allow the inclined interface to direct light received from the light emitting device toward a direction different from an original direction of the received light.

24. The test structure of claim 23 wherein the first region comprises a solid material, and wherein the second region comprises a gas.

25. The test structure of claim 23 wherein the inclined interface is formed at an incline angle appropriate to direct the received light in a substantially orthogonal direction.

26. The test structure of claim 23 wherein the first region comprises a material having a different refraction index than that of a material of the second region.

27. A method, comprising:

directing a light beam emitted from a device in a wafer in a direction different from an original direction of the light beam as emitted from the device, via use of a test structure included on the wafer;

detecting the directed light beam; and

evaluating the detected light beam.

28. The method of claim 27 wherein directing the light beam comprises redirecting the emitted light beam from an interface between two materials of different indexes of refraction.

29. The method of claim 27 wherein evaluating the detected light beam comprises evaluating at least one of an intensity of the detected light beam and a frequency of the detected light beam.